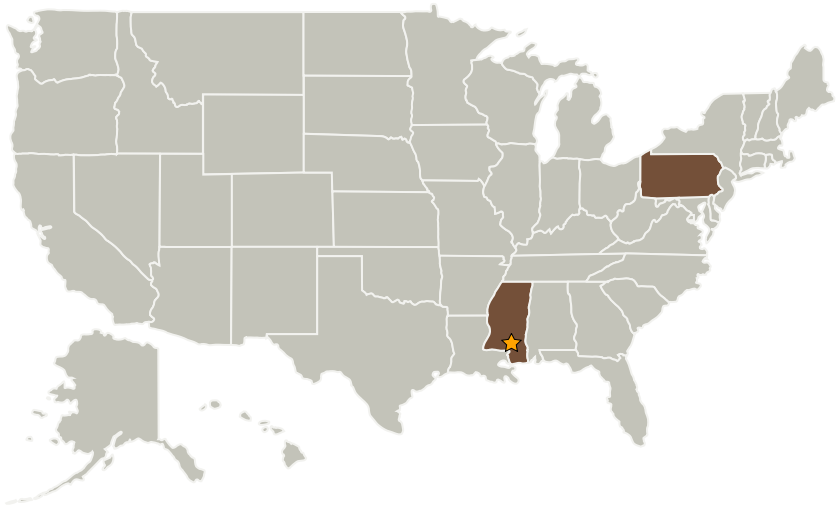
Automated Extraction of Crop Area Statistics from Medium-Resolution Imagery, Phase I

Completed Technology Project (2006 - 2006)

Project Introduction

This project will focus on the strategic, routine incorporation of medium-resolution satellite imagery into operational agricultural assessments for the global crop market. Automated algorithms for rapid extraction of field-level crop area statistics from Landsat and Landsat-class imagery (including SLC-off L7 data, AWiFS, ASTER, and NPOESS/OLI) will be developed. For prototype development, the project will collaborate with the Production Estimates and Crop Assessment Division of the USDA Foreign Agricultural Service. The algorithms, based on Bayesian Probability Theory, will incorporate multiple lines of evidence in the form of prior and conditional probabilities and will implement an innovative approach to supervised image classification allowing for automated class delineation. The knowledge-based expert classifiers prototyped during Phase I will be tested and validated at selected pilot sites across the globe. The overall results of the project will enhance global agricultural production estimates by improving the timeliness and accuracy of field-level crop area estimates. It addresses the NASA SBIR subtopic by developing unique, rapid analyses for the extraction of crop area statistics from medium-resolution imagery. The developed technologies will support both the scientific and commercial applications of ES data and will be benchmarked for practical use against an international model for agricultural production estimates.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
GDA Corp.	Supporting Organization	Industry	State College, Pennsylvania

Primary U.S. Work Locations	
Mississippi	Pennsylvania

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts